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ALTERATIONS IN AGGRESSIVE BEHAVIOR IN MICE WITH CHANGES IN BRAIN 5-HYDROXYTRYPTAMINE REGULATION. W.B. Essman, W. Kostowski* and L. Valzelli*. Queens College of the C.U.N.Y., Flushing, N.Y. 11367 and Mario Negri Inst., Milan, Italy.

The modulation of aggressive behavior resulting from isolation housing in mice was investigated in several studies in which 5-hydroxytryptamine (5-HT) regulation was altered. Male albino mice, isolation housed for 28 days, showed somewhat elevated 5-HT levels (14%) and a 2.7 fold increase in 5-hydroxyindoleacetic acid (5-HIAA) concentration. When 5-HT synthesis was interrupted by inhibition of tryptophane hydroxylase with p-chlorophenylalanine (PCPA)--300 mg/kg at 3-day intervals, and brain 5-HT levels were reduced (0.78 ± 0.11 to 0.47 ± 0.12) during isolation housing, aggressive behavior was reduced (50%). Group-housed mice given comparable PCPA treatment became aggressive after 4 injections. The aggressive behavior in isolated mice was completely abolished when measured 3 days or more after lesions of the nucleus magnus of the ventral raphe; brain 5-HT level was reduced ($0.64 \pm .03$ to $0.38 \pm .02$ $\mu\text{g/g}$; $p < .001$) as was 5-HIAA ($0.32 \pm .02$ to $0.17 \pm .01$; $p < .001$). Decreased brain 5-HT in PCPA-treated grouped mice increased microsomal protein synthesis in cerebral cortex (46%; $p < .01$); and diencephalon (13%; $p < .05$); such protein synthesis in PCPA-treated isolated mice was inhibited in the limbic system (13%; $p < .05$). Attenuation of isolation-induced aggressive behavior has been related to both alteration in 5-HT regulation of protein synthesis and metabolism. (Supported in part by a Grant from the Council for Tobacco Research, U.S.A.)

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